



PARKER-HALE

7.62 x 51 mm
SNIPER RIFLE
M.85

REPAIR INSTRUCTIONS

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Chapter 1

STRIPPING AND REASSEMBLY

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Figure

- 1 Bolt assembly – stripped
- 2 General arrangement – part sectional view
- 3 Backsight assembly

1. SAFETY PRECAUTIONS

Before carrying out any operation on the weapon, ensure it is unloaded.

1.1 CAUTION

The safety catch can only be applied when the bolt is closed and the action cocked. No attempt should be made to apply the catch when the bolt is in the open condition.

1.2 UNLOADING

Raise the bolt and draw it fully to the rear, inspect the chamber to ensure the weapon is clear.

1.3 WORKING AREA

Ensure that:

1.3.1 There is no ammunition in the working area

1.3.2 All drill and inspection rounds are checked before commencing work.

1.4 DETAILED STRIPPING AND REASSEMBLY

Detailed stripping is only to be carried out to the level necessary to carry out repairs and adjustments.

2. TOOLS REQUIRED

In addition to the usual armourers tools the following hand tools are required.

2.1 Wrench, socket head screw 1/8 inch. (Nato service no. [NSN] F1/5120-99-910-6062)

2.2 Wrench, socket head screw 3/16 inch. (NSN F1/5120-99-910-6064)

2.3 Wrench, socket head screw 9/64 inch.

2.4 Wrench, socket head screw 5/32 inch. (NSN F1/5120-99-910-6063)

2.5 Wrench, socket head screw 0.050 inch. (NSN F1/5120-99-910-6057)

2.6 Spanner OJDE 2 x 4 BA. (NSN Z16/5120-99-944-6169)

3. STRIPPING THE BOLT ASSEMBLY (Fig 1)

- 3.1 Raise the bolt to the open position, fully depress the rounded tail of the ejector and draw the bolt to the rear, clear of the body.
- 3.2 Hook the bent of the cocking piece over a suitable vertical metal surface. Pull the body of the bolt to compress the striker spring and insert a 3/32 inch drift into the hole in the underside of the cocking piece.
- 3.3 Depress the plunger that protrudes from the front LH side of the bolt plug. Unscrew the bolt plug (5 complete turns) and remove the firing mechanism from the rear of the bolt.
- 3.4 To remove the extractor, rotate the extractor in a clockwise direction when viewed from the rear; until its forward end moves out of the guide slot on to the plain portion of the bolt. Apply firm thumb pressure to the rear of the extractor, removing it forward clear of its split ring on the bolt.
- 3.5 Hold the firing mechanism in the vertical position with the nose of the striker inserted into a 1/4 inch hole in a metal or hardwood block. The striker then bears on the gas flange and damage to the nose of the striker is prevented. Press firmly down on the bolt plug; against the action of the striker spring, until the cocking piece is completely clear of the bolt plug. Remove the drift and rotate the cocking piece 1/4 turn and remove it from the striker. Allow the striker spring to reassert UNDER CONTROL and remove the bolt plug.
- 3.6 To remove the bolt plug plunger, press the plunger rearward against the action of its spring until the plunger guide stud aligns with the slot in the guideway.
- 3.7 Rotate the plunger so that the stud clears the slot, control the plunger as it is driven forward by its spring and remove it from the hole in the bolt plug.
- 3.8 To remove the striker spring, rotate it in a clockwise direction and at the same time pull it to the rear clear of the striker.
- 3.9 Reassemble in the reverse order paying particular attention to the following points:
 - 3.9.1 To assemble the extractor, rotate the extractor retaining ring so that the dovetail block formed by the ends of the ring align with the plain portion of the bolt.

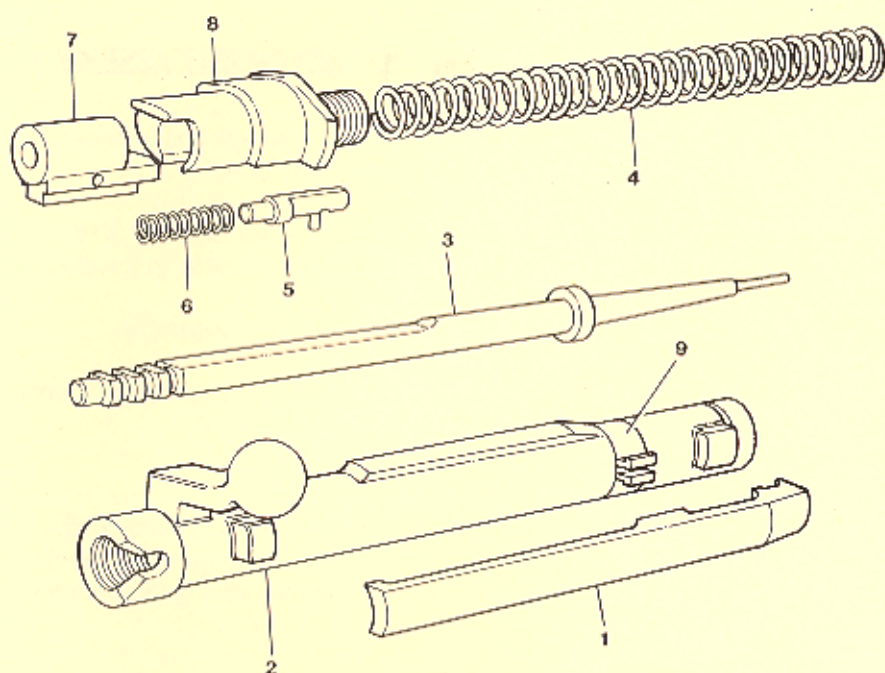


FIG 1 BOLT ASSEMBLY – STRIPPED

KEY

1. Extractor
2. Bolt
3. Striker
4. Striker Spring
5. Bolt Plug Plunger
6. Plunger Spring
7. Cocking Piece
8. Bolt Plug
9. Extractor Retaining Ring

3.9.2 Using soft clams to prevent damage, grip the bolt in a vice so that the retaining ring is compressed. Assemble the extractor by holding it depressed against the bolt and at the same time press it to the rear, ensuring the slot in the underside of the extractor engages the lugs of the retaining ring.

3.9.3 Rotate the extractor anti-clockwise so that its forward end engages the guide slot in the bolt.

4. REMOVING THE STOCK FROM THE BODY/BARREL ASSEMBLY (Fig 2)

4.1 Unscrew and remove the trigger guard rear screw and front bedding swivel screw together with the front bedding bush.

4.2 Unscrew and remove the trigger guard front screw using 3/16 inch hex headed key. Lift the trigger guard from its recess in the stock.

4.3 Carefully detach the stock from the body/barrel assembly.

4.4 Reassemble the stock in the reverse order paying particular attention to the following points. Paragraph numbers 5 and 6.

5. PRESERVATIVES

Light grease should be sparingly applied to the underside of the body prior to reassembly of the stock. All surplus grease should be removed after reassembling the stock and tightening the bedding screws.

6. REPLACING THE STOCK

Correct sequence and tightening of the bedding screws is important if optimum accuracy of the weapon is to be maintained. Replace the stock and reassemble the bedding screws as follows:

6.1 Replace the front bedding bush and swivel screw.

6.2 Insert the trigger guard and assemble the two screws until they are finger tight.

6.3 Tighten the front bedding swivel screw and the trigger guard front screw alternatively 1/4 turn at a time until they are tight (Tight should be understood to mean that tightness which can be achieved with a normal length tightening tool using firm but not excessive pressure).

- 6.4 Tighten the trigger guard rear screw by light hand pressure only. Approximately 1/2 turn should remain on this screw from its tight position as described in 6.3.

7. STRIPPING THE STOCK (Fig 2)

- 7.1 Slacken the front swivel screw until the handstop can be slid forward clear of its track in the forend.

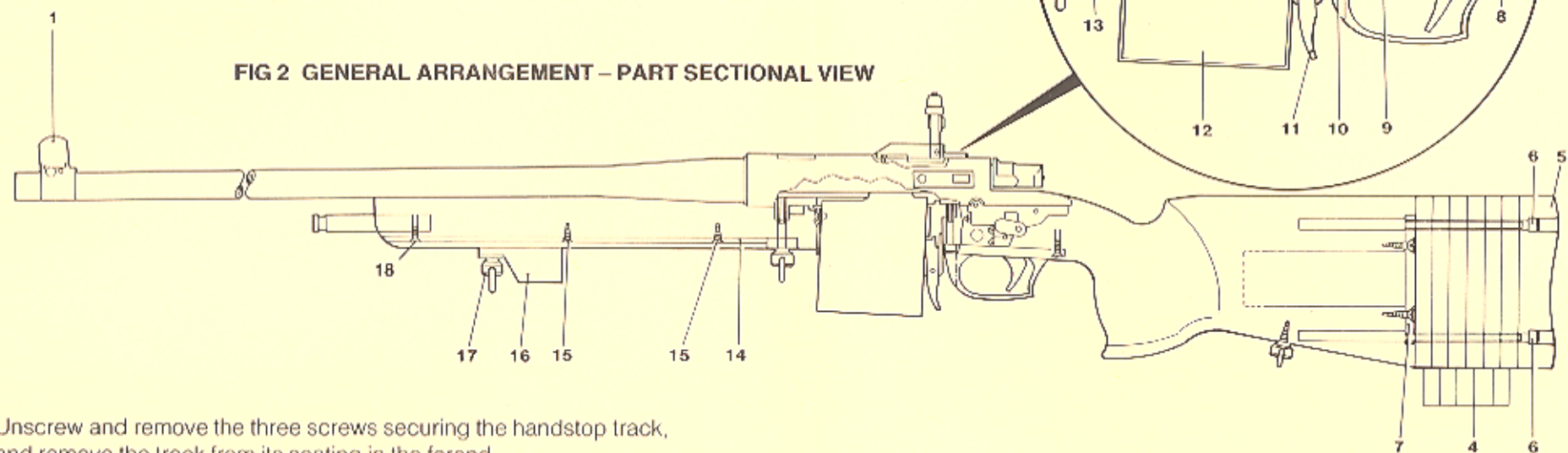


FIG 2 GENERAL ARRANGEMENT - PART SECTIONAL VIEW

- 7.2 Unscrew and remove the three screws securing the handstop track, and remove the track from its seating in the forend.
- 7.3 Unscrew the two 3/16 inch socket head screws securing the recoil pad. Remove the pad together with the butt spacers that are fitted (max eight).
- 7.4 Unscrew and remove the two screws securing the recoil pad returning plate, use one of the recoil-pad screws to unseat the retaining plate from its seating in the rear face of the butt. Unscrew and remove the rear sling swivel from the butt.

NOTE

Unless the weapon is to be fitted with a new stock, no attempt should be made to remove or adjust the four nuts that secure the two recoil-bolts to the stock. The bipod spigot should be regarded as part of the stock and no attempt should be made to remove it.

- 7.5 Reassemble in the reverse order ensuring that when replacing the handstop track the 2BA screw is inserted at the front of the track.

KEY

- | | |
|-------------------------------|---------------------------------------|
| 1. Foresight Assembly | 10. Trigger Guard/Action Fixing Screw |
| 2. Ejector Box | 11. Magazine Catch |
| 3. Tail of Ejector | 12. 10 Round Magazine |
| 4. Butt Spacers | 13. Recoil Bolt |
| 5. Recoil Pad | 14. Handstop Track |
| 6. Socket Head Screw | 15. Woodscrew |
| 7. Retaining Plate | 16. Handstop |
| 8. Trigger Guard Fixing Screw | 17. Front Swivel Screw |
| 9. Rear Recoil Bolt | 18. 2BA Screw |

8. STRIPPING THE BODY/BARREL ASSEMBLY (Fig 2 and 3)

- 8.1 Remove both the socket head screws from the foresight and gently tap the foresight assembly clear of the mounting block.
- 8.2 On the early type of foresight, lift the U shaped clamp and remove the blade by unscrewing.
- 8.3 On the later type of foresight depress the spring loaded plunger and remove the bead by unscrewing. Ensure that the plunger and spring are not displaced from their hole in the foresight body. A special tool can be provided for this task, Parker-Hale no. 556/77.
- 8.4 Unscrew the thread protector.
- 8.5 Knock out the pin block foresight using a suitable drift and remove the mounting block from the barrel. NOTE: THIS IS NOT ADVISED UNLESS BARREL OR BLOCK FORESIGHT IS TO BE REPLACED.
- 8.6 To remove the backsight as an assembly, remove the leaf spring by unscrewing the screw at the front of the spring, knockout the fixing pin using a suitable drift.
- 8.7 To strip the backsight assembly, unscrew the eyepiece and remove the scale plate. Raise the eyepiece block to its highest position and remove the 6BA screw. Pull off the adjustment knob ensuring the washer, ball and spring are not displaced from the leaf. Remove the eyepiece block, screw and block bush as one unit. Unscrew the block bush. The screw and eyepiece blocks are permanently joined and no attempt should be made to separate them.
- 8.8 To remove the ejector box from the rear LH side of the body unscrew and remove the 1/8 inch socket head screw. Lift the ejector box clear of its seating on the body ensuring the ejector spring is not misplaced from its hole in the ejector.
- 8.9 Remove the ejector spring and using a suitable drift drive out the ejector axis pin.
- 8.10 Lift out the ejector spring guide from its hole at the rear of the body.
- 8.11 To remove the trigger mechanism assembly, drive out the retaining pin from front end of the mechanism and detach the assembly from the body.

NOTE

Stripping of the trigger mechanism assembly is NOT ADVISED. Where faults arise in the mechanism that cannot be rectified using the three adjusting screws, the complete mechanism should be exchanged.

- 8.12 Reassemble in the reverse order. The foresight mounting block should be secured to the barrel using Loctite 270 ('Studlock') before replacing the pin. NOTE: ENSURE BEAD (OR BLADE) IS VERTICAL BEFORE FITTING THE PIN.

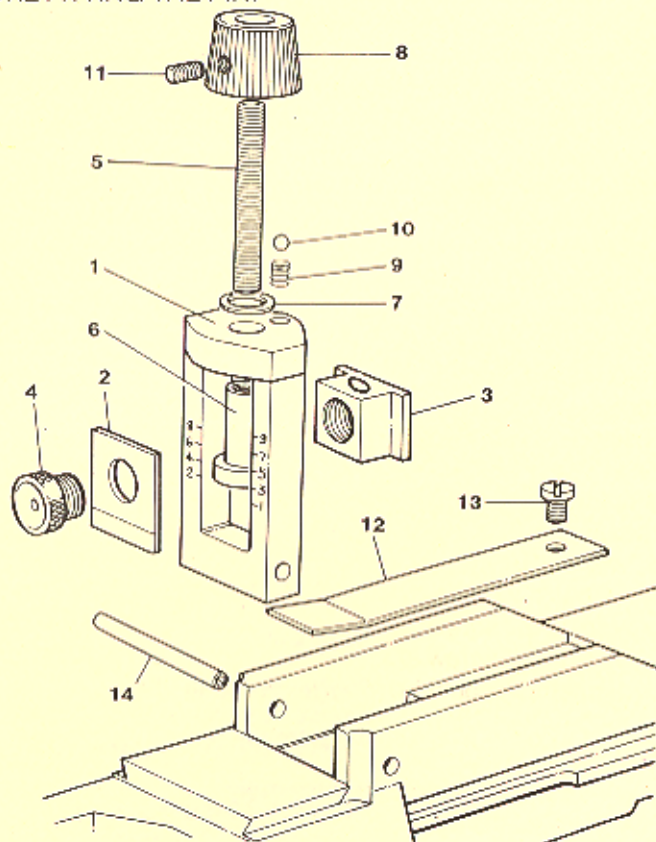


FIG 3 BACKSIGHT ASSEMBLY

KEY

- | | |
|---------------------|----------------------|
| 1. Leaf | 8. Adjustment Knob |
| 2. Scale Plate | 9. Spring |
| 3. Eyepiece Block | 10. Ball |
| 4. Eyepiece | 11. Grub Screw (6BA) |
| 5. Screw | 12. Rearsight Spring |
| 6. Bush Screw Block | 13. Spring Screw |
| 7. Washer | 14. Fixing Pin |

Chapter 2

REPAIRS AND ADJUSTMENTS

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6. HEADSPACE
7. RUSTPROOFING
8. LUBRICATION AND PRESERVATION

Figure

1

Trigger Mechanism

1. STOCKING

1.1 GENERAL

The stock should be free from splits, dents and abrasions. Repairs should conform to original contours and be finished smooth with a reasonable colour match. Where a patch is inserted to repair a damaged area, it should be dove-tailed, glued and pegged in position. The number of patches inserted is immaterial providing the strength of the stock is not affected.

1.2 ADJUSTMENT OF BUTT LENGTH

1.2.1 The length of 'pull' (trigger to butt plate) is adjustable to allow the user to obtain correct eye relief.

1.2.2 Six .39" (10mm) spacers are fitted when the weapon is issued, these may be removed to suit individual firer's requirements. A 3/16 inch AF hexagon key is required in order to remove the two screws securing the recoil pad.

1.3 SCREW HOLES

The screws for the recoil pad retaining plate, rear swivel and handstop track should assemble and tighten under firm hand pressure without slipping. Where the screw hole has stripped it should be repaired by drilling out to a suitable oversize and securing a dowel in position using epoxide adhesive. After the adhesive has cured the dowel should be filed down to conform to the original contour, and drilled with a clearance hole to suit the particular screw.

1.4 BEDDING

1.4.1 The underside of the body is fully bedded to the stock using an aluminium epoxide putty. Two recoil-bolts passing through the stock are each secured by two nuts, and are also bonded in position by the bedding material.

1.4.2 It is imperative for consistent accuracy that the stock is retained to the parent body/barrel assembly. For this reason the flat of the grip is marked with the full serial number of the weapon.

1.4.3 No attempt should be made to adjust the bedding material by adding or removing the aluminium putty, or to remove the recoil bolts.

1.4.4 Where the stock is found to be unserviceable due to damage, or the bedding is suspect due to poor accuracy a new stock should be fitted.

- 1.4.5 To ensure optimum accuracy the barrel is free-floating within the stock. A clearance of 0.060 inch (1.55mm) min should be maintained forward of the barrel reinforce. This clearance may be checked by using a suitable piece of card approximately 6" x 1" of the correct thickness. Where the clearance does not exist due to distortion or bowing, carefully remove wood from the barrel seating using a chisel until the correct clearance is obtained.

1.5 TREATMENT OF WOODWORK

- 1.5.1 To obtain a uniform colour after repair the stock should be treated with a suitable wood stain.
- 1.5.2 Sand the stock, working through the main grades of sand-paper, finishing with a fine grade to remove scratches and the old surface finish. Shallow dents or bruises in the wood may be lifted by applying a piece of wet felt over the dent and pressing a heated soldering iron onto the area for a few seconds.
- 1.5.3 Apply the stain/oil solution to the stock liberally with a pad or soft cloth and allow it to stand for approximately 1 hour.
- 1.5.4 Remove any surplus stain solution using a soft cloth.
- 1.5.5 To maintain the appearance and condition of the stock the user should be encouraged to periodically apply a very small quantity of boiled linseed oil to the stock. This should be rubbed well into the stock by hand.

CAUTION

On no account should linseed oil be applied to the bore, mechanism or exterior of the weapon.

2. BARREL

- 2.1 Where after cleaning doubt exists as to the serviceability, the weapon should be tested for accuracy.
- 2.2 Weapons with loose, bent or bulged barrels or weapons that fail the accuracy test should be returned for overhaul.

3. BODY

- 3.1 No repairs are envisaged or recommended, burrs may be removed by careful stoning. The components of the ejector box may be exchanged when worn or damaged. All other wear or damage must involve the weapon being returned for overhaul.

4. TRIGGER MECHANISM

4.1 GENERAL

The trigger is the double pull type and can be adjusted to give pull-off weights of 2.0 lbs (0.90 kg) min to 5.0 lbs (2.2 kg) maximum. Adjusting screws are also provided to enable any creep and overtravel to be rectified between the sear and trigger.

4.1.1 On initial issue the mechanism is preset to give a pull-off between 3.5 lbs (1.5 kg) to 4.5 lbs (2.0 kg).

4.1.2 Stripping of the trigger mechanism is not recommended. Where the pull-off cannot be adjusted within the laid down limits, or where the mechanism fails the safety checks, the trigger mechanism should be replaced as a complete sub-assembly.

4.2 SAFETY CHECKS

To carry out the safety checks the stock must be removed as previously detailed.

NOTE The safety catch must only be applied with the bolt locked and the firing mechanism in the cocked position.

4.2.1 Check that the safety catch is positively retained in both the 'ON' and 'OFF' position by the spring loaded ball engaging the two holes in the side of the catch.

4.2.2 Check that the long arm of the safety catch engages the recess in the underside of the bolt and prevents rotation of the bolt.

4.2.3 Check that the trigger is positively blocked by the stop of the safety catch engaging over the step at the rear of the trigger.

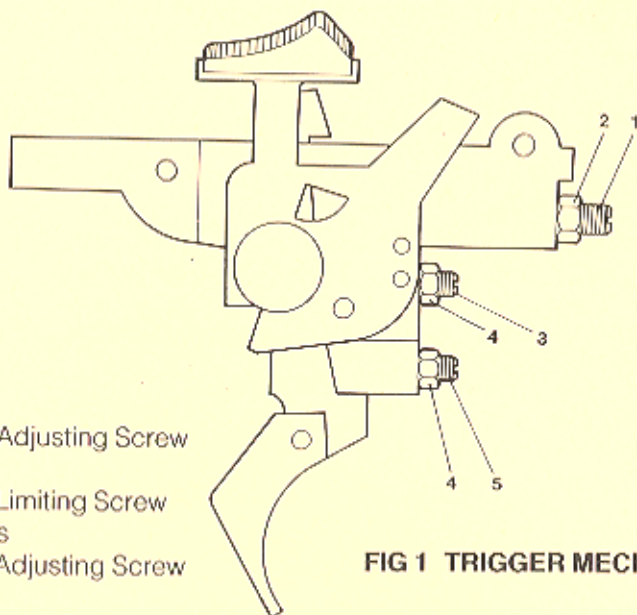
4.2.4 Check that the sear stop on the safety catch moves below the sear and lifts it clear of the trigger bent.

4.3 TO ADJUST PULL-OFF (Fig 1)

4.3.1 Unlock the lock-nut from the pull-off adjusting screw.

4.3.2 To increase the weight of the pull-off, turn the adjusting screw clockwise to obtain the maximum weight of 5.0 lbs. To decrease the weight to the minimum permissible pull-off of 2.0 lbs, rotate the screw anti-clockwise.

4.3.3 Having obtained the required weight of pull-off, hold the adjusting screw to prevent rotation and carefully tighten the locknut.



KEY

1. Pull-Off Adjusting Screw
2. Locknut
3. Trigger Limiting Screw
4. Locknuts
5. Trigger Adjusting Screw

FIG 1 TRIGGER MECHANISM

4.4 TRIGGER CREEP AND TOTAL MOVEMENT

4.4.1 The trigger adjusting screw controls the amount of engagement between the trigger and sear. Where this engagement is excessive the trigger will have considerable movement or creep before the sear is released and the action fires.

4.4.2 The trigger adjusting screw bears on the front of the trigger, below its axis pin. Clockwise or anti-clockwise rotation of the screw decreases or increases respectively the amount of engagement between the trigger bent and the underside of the sear.

4.4.3 The trigger limiting screw bears on the trigger above its axis pin and limits the rearward movement of the trigger.

4.5 Where the weight of pull-off, creep and total movement all require adjustment. The creep and total movement should be adjusted first, followed by adjustment of the pull-off.

4.5.1 To adjust the creep and overall trigger movement proceed as follows:

- 4.5.1.1 Release the locknuts of the limiting and adjusting screws and rotate the limiting screw two complete turn anti-clockwise.

- 4.5.1.2 Cock the firing mechanism by opening and closing the bolt.
- 4.5.1.3 Slowly rotate the adjusting screw clockwise until the bent on the trigger clears the sear and the action fires.
- 4.5.1.4 Rotate the adjusting screw 1/8th turn anti-clockwise, recock the firing mechanism by operating the bolt and check to ensure the cocking piece is retained in the cocked position.
- 4.5.1.5 Finely adjust the screw so that the firing mechanism cocks consistently with minimum creep of the trigger. When this condition is achieved, hold the screw to prevent rotation and tighten the locknut.
- 4.5.1.6 Carefully rotate the trigger limiting screw in a clockwise direction until it is felt to contact the trigger. On no account apply any force as the screw contacts the trigger or damage to the mechanism will result.
- 4.5.1.7 Having contacted the trigger, rotate the limiting screw back 1/4 turn anti-clockwise. Hold the screw to prevent rotation and tighten the lock-nut. Adjust the pull-off as detailed in paragraph 4.3.

NOTE

Should the limiting screw be maladjusted so that there is insufficient overall trigger movement, the sear will bind on the face of the trigger and slow its fall. It may well also jam in the down position preventing cocking of the firing mechanism.

4.6 REASSEMBLY

After reassembly of the stock recheck the pull-off and trigger adjustment, ensuring that the trigger is not frictioning on either side of the trigger guard. Slight sideways movement should be evident in the trigger when tested by finger pressure with the stock screws tightened fully.

5. BOLT ASSEMBLY

- 5.1 Repairs to the bolt are limited to the removal of burrs and the exchange of worn or damaged parts. Fractured, damaged or worn bolts involve the weapon being returned for overhaul.
- 5.2 Strikers that are slightly bent may be straightened but where protrusion is outside the limits 0.055" – 0.065" a new striker is to be fitted.

6. HEADSPACE

Headspace is not adjustable. Where headspace is outside the gauge limits the weapon should not be fired and should be returned for overhaul.

7. RUSTPROOFING

On initial issue the protective finish on the exterior of steel components of this weapon is a chemically applied blacking process together with a thin film of oil. The oil film should be regularly renewed by wiping over the steel components with a lightly oiled cloth.

8. LUBRICATION AND PRESERVATION

Lubrication and preservation of the weapon is as follows:

- 8.1 The weapon is to be lubricated and preserved using a suitable oil.
- 8.2 All working parts are to be lubricated at all times prior to firing. Care should be taken to ensure that the stock is kept free from lubricants and preservatives.
- 8.3 Prior to firing, all gas affected parts, ie. bore, chamber, and bolt face are to be dry cleaned.

Chapter 3

FUNCTIONING AND ACCURACY STANDARDS

Contents

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1. GENERAL
2. FUNCTIONING
3. SENTENCING

Table

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| 1 | Test firing data |
| 2 | Accuracy data |

1. GENERAL

- 1.1 Weapons are to be range tested for functioning (operating efficiency) and accuracy (weapon's capabilities) in accordance with Table 2 when the repairs or replacements listed in Table 1 have been carried out, or when any doubt is expressed by the user as to the functioning or accuracy of the weapon.
- 1.2 Prior to test firing the weapon should be prepared for firing by dry cleaning of the bore and breech bolt face.

Serial	Repair or condition	Type of test firing	Remarks
1	Repair/replacement of foresight or backsight	Re-Zero	
2	Barrel-Bends, cuts or pitting	Accuracy	Providing gauge plug 0.2975" runs
3	Chamber – suspect	Functioning	Test for hard extraction and/or deforming of fired case.
4	Stock repaired or replaced	Accuracy	

Table 1 – Test firing data

2. FUNCTIONING

Weapons should feed, lock, fire, extract and eject all rounds and spent cases without failure. Weapons failing function tests should be checked for serviceability of components. Once rectified, they should be re-tested. Where a weapon still fails to function correctly it should be returned for overhaul.

3. SENTENCING

Weapons that fail the accuracy standard detailed at Table 2 should be returned for overhaul.

Condition	Detail/Standard
Range	100m
Sight Setting	100m
Group Size	Circle 38mm dia. All shots to be within the circle.
Means of Adjustment	<u>Foresight</u> Lateral: By adjustment of windage screws Vertical: By adjustment of bead
No. of Rounds	Warmers followed by 5 rounds onto the target.
Conditions	Weapon to be fired from the shoulder, prone or bench rest. Sniper or target standard ammunition to be used.

Table 2 – Accuracy data

Parker-Hale has been assessed by the British Ministry of Defence to quality assurance DEF STAN 05-21

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